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ABSTRACT

This paper, in "Part I--Trends in Industrial Development"--notes that industrial development is continuing in developing countries, but with such discontinuity, diversity, and selectivity that generalizations are difficult. In the first development decade (the 1960's), industrialization did not fulfill expectations, and gaps in economic status widened. The modernization trend increasingly incorporated orientation to the future, but emphasis on growth lessened while emphasis on environmental consequences intensified, and the post-industrial service sector assumed major importance. Regional and global theaters of development gained in importance; and economic, social, and biological philosophies were blended in the revival of ecological values. "Part II--Industrialization: Implications for Other Sectors"--surveys the classical model of impact, growth of population, distribution of population, poverty and the maldistribution of income, occupations and employment, and infrastructure. "Part III--Concluding Note" discusses some major implications, such as industrialization is a necessary but insufficient contribution in the development of developing countries. A 44-item bibliography is appended. (NH)

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INDUSTRIAL TRENDS: IMPLICATIONS FOR DEVELOPMENT

By

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For presentation at the Third World Congress of Rural Sociology

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INDUSTRIAL TRENDS: IMPLICATIONS FOR DEVELOPMENT[1]

Introduction: Industrial Development Defined

It has been common to equate development in the third world with modernization, meaning movement toward the advanced modes of life and work which enhance welfare in other countries. Industrial development has been assumed almost universally to be a main instrument of modernization; an inevitable, pre-eminent, and, at least penultimately, dominant sector of total development. Industrial development is by definition both a process and a condition of structural economic and social change, accomplished by the utilization of science, technology, and power, and by division of labor among specialists to organize economic factors for maximum production at minimum cost. (Hughes, 1968)

Having occurred with revolutionary consequence in Western history, industrialization is now thought to be a master stratagem of developmental change throughout the world. As a topic of research, it has received concentrated attention mainly of economists and to some extent of political scientists. More recently it has become a major object of study by anthropologists, sociologists, and interdisciplinary analysts. Empirical rural sociologists have generally been aware that industrial tides flow through and around the communities they observe, but the usual micro-focus of their reports makes their contribution to the research literature relatively inconspicuous. Certainly now, factors associated with and consequent to industrial development are as important as any other topics in the study of rural social phenomena.

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[1] By Howard W. Beers, Director of the Center for Developmental Change, University of Kentucky. For presentation at the Third World Congress of Rural Sociology, Baton Rouge, Louisiana, August 21-25, 1972. Critical help from colleagues Kurt Anschel, Charles Hultman, David Ross, and Eldon Smith is appreciatively acknowledged.

Part I--Trends in Industrial Development.

1. Discontinuity, diversity, selectivity.

Industrial trends are the directions and rates of movement, and distances travelled in the organization of industrial activity. Industrial development is occurring in all presently developing areas, but selectively with respect to location and type of industry, and with many discontinuities. Reports of the United Nations Industrial Development Organization (UNIDO, 1970) present various indices of industrial growth in all nations, in recent years, both separately and in three groupings by type of economic organization: "centrally-planned", "developed market" and "developing". Hardly any of the developing countries, however, has had uninterrupted tranquility, or freedom from war and disturbance to follow consistent policies with respect to industrial development. Although certain degrees and qualities of political instability might be stimulating, and some discontinuous movement might be preferable to stasis, it is evident that many developing economies have encountered obstructive diversions. In hardly any developing society has industrial development yet become industrialization in the sense that, either as process or condition, it has come to pervade the economy and permeate the society. By the end of the first development decade (the 1960s), industrial effort had not yet been sufficiently rapid or pervasive to fulfill earlier expectations of impact on total development. A United Nations report in 1971 identified 25 countries, with 150 million people as the world's least developed, having percapita income of less than $100 per year, and with manufacturing accounting for less than 10 percent of gross domestic product. (SID, VIII-6, 1971) Differences in economic status and in welfare widened between nations and between subgroups and persons within nations. Problems in the maldistribution of income became aggravated rather than alleviated. (UNIDO, 1970; IADB, 1971)

Expenditures for military purposes throughout the world continue to divert resources from investment in development. The reported allocation of 204 billion dollars for world military expenditures in 1970 alone is "an equivalent in dollar value of the [estimated] year's income of 1.8 billion people in the poorer half of the world's population." (United States Arms Control and Disarmament Agency, 1970). It must be noted also that some increases in production which have been stimulated by flows of capital in connection with the conduct of war are not really attributable to development. (ECAFE, 1970).

Economic enterprises and organizations are as diverse as other social systems and subsystems in a pluralistic society, and they escape the regulations that are attempted by simplistic uniform policies. They are implicated in countless units of interaction and events of change. Industries are small and large; light and heavy, labor intensive and capital intensive; specialized by commodity produced; cooperative; primary; independent; linked forward, backward, horizontally, and vertically. Many processes and conditions in other social and economic sectors are associated with the changes--in which all these types, and others, are involved, and which together we label as industrial trends. When industry changes rapidly, or slowly, or by sporadic movement, or differentially among various fields of production, the effects on other aspects of development may be responsively advanced, lagged, or intermittent. It isn't realistic to deal with industrial development as though it were a unitary classic trend: there are many trends and counter-trends as well as many idiosyncratic changes that are not trends at all. Only a few will be mentioned in this paper, selected for their importance to selected aspects of total development.

2. Modernizing the meaning of modernization.

Modernization now means more than "catching up" with the present. A new emphasis in the developed market-economies and in the centrally-planned economies, is movement toward anticipated future modes of life and work not yet achieved in many places, perhaps not anywhere, but nevertheless predicted and desired. Interest in the future is not new, of course: it is a distinguishing characteristic of man, the only long-time planner among the creatures of earth. Man can guide his action by anticipation of future consequence and has always been a predictor and projector, whether by omen or calculation. But now there are special reasons for greater attention to the future. Among them are vast increases in knowledge of the past, expanding volumes of data about the present, and growing capability for dealing simultaneously with many variables in the study of relationships and trends. There is also the forward-thrusting momentum of accelerating change. And finally, unique to this generation is man's awesome theoretical capability either to develop richer qualities of society and culture, or to self-destruct, whether instantly by nuclear power, or slowly by pollution. It is perhaps not entirely ironic in the age of computers and complicated reasoning, that one type of futurism is a revival of guidance by ancient simplistic signs and oracular sources of prophesy. They are simple, and for one who can accept them, they offer relief from the more complicated task of rational analysis, which is so often inconclusive. Another new element in the definition of modernization and development is the softening of accent on growth, which has long been a major criterion, now yielding but not without challenge, to goals of stablization and equilibrium in economic, social and demographic systems. (Meadows, 1972). For some, growth is still a dominant feature of development; for others—including some contemporary younger leaders and theorists, the "steady-state", with its stability or even some decline in population and production may be a preferred style and condition of development.

This redirection of outlook from present to future is still mainly to be noted in well-developed countries but it is not entirely overlooked by the leadership elites in the developing economies, already on guard against pollution-producing industries, with the United Nations assuming new but under-budgeted environmental watch-dog functions. (Note, SID: IX-6, 1972).

3. Modernizing the indicators of development to reflect welfare.

The simplest, most frequently used, and easiest to communicate indicators of development each inform us with regard to only one of its dimensions, such as income or gross domestic product per capita. In the market economy, however, welfare is enhanced by both the "market-effects", and "non-market effects", of economic action and the "equity effects" of each (Beattie, et al, 1972). There is need for representation of the quality attributes of welfare along with calibrations of quantity, and the need to include them is equally important in the market economies and the centrally-planned economies. The usual one-variable indices do not fully measure development and can only be suggestive. Even an index of real income per capita would have all the weaknesses of any average number and would thus fail to convey a measure of equity effects of developmental action, or the distribution of well-being as expressed in the concept of social justice.

In presenting other dimensions, satisfactory summary indicators of modernization would reflect, among other features, a society's internal capability for research (or for the utilization of research done elsewhere). Also represented, for example, would be data for responsiveness to opportunity, including demonstrated readiness to innovate. Although capability for prediction is implied by capability for research, the new and universal urgency of forward-analysis intensifies the importance of projection and justifies its being singled out for separate mention as an indicator. Industrial development in low-income countries would result in increased income, it might result in more equitable distribution of improved welfare, it should increase capability for research, responsiveness to opportunity, innovativeness, and capability for prediction.

4. The emerging primacy of the service sector.

Only in recent decades and mainly, but not only in developed market-economies, the dominance of industry is being superceded by that of the service sector (Krause, 1971). It is now generally evident that the service sector among all others achieves eventual primacy in the developing economy.

The most developed societies are now aiming at post-industrial objectives, and industrialization is seen to be an intermediate rather than, as formerly viewed, an ultimate process and condition. Where there has been the most industrial development, there is now interest in post-industrial phenomena in general, and especially there is new concern with respect to environmental limitations. Rostow, a pioneer in outlining stages of industrialization has recently added to what he previously had identified as the culmination of industrialization, the stage of "high mass consumption", a period characterized as the "search for quality". (Bell, 1972)

Earlier views that industrial development should precede or follow agricultural development have been largely superceded by the generally accepted conclusion that each particular situation must be separately analyzed with respect to the relative importance of the sectors (Glassburner, 1971; Mead, 1967). At a given time and place any one may be more forward or laggard than the others, and they may differ in priority of claim for the attention of national policy makers. By the time agriculture, too, is modernized, the industrial sector of an economy is yielding dominance to the service sector. For illustration of this, it is necessary only to recall that agricultural workers were more numerous than factory workers in the USA until about 1920; by 1980 workers in all goods-producing industries together will come to only half the number of workers in service-producing industries. The phrase, "post-industrial" is already in use; but the meaning intended is more like that of a later stage of industrialization in which the production of services involves more

manpower than the production of goods. Service industries outweigh goods-producing industries—but goods are still produced, and industry is still a prominent form of organization employing science, technology, power and elaborate division of labor.

5. Regional and global enlargement.

Industry in developing countries exists within the gravitational fields of transcendant international, political and industrial systems which limit possibilities of survival and growth, although nations with large local markets can insulate themselves, to some extent. Much of the power and initiative for action in industrialization lie with large international businesses: companies combines, cartels, and conglomerates. The world-wide coverage of international business has developed very extensively in the last two decades. It is a problem of national governments and local communities in the developing countries to command enough strength and sophistication for negotiating with international businesses which have massive capability for risk-venture and investment; ready supplies of capital and expertise; access to technology; the social capability of computerized complex organization; their own programs of research and development; their own internal information systems and manpower training programs. (Ewing, 1967)

Another problem of developing countries is to gain access to the markets of developed countries, wherein lies their reward for dedication to the economic principles of efficiency, scale and comparative advantage (McNamara, 1972). Regional and common markets and free-trade areas are newly developing systems of interaction which may facilitate economic change in the developing countries which are included and not excluded, and if their diversity of production promotes exchange. In the never-never time when all economies have become developed, surely all will export and import more, regionally and in globally-balanced patterns of trade.

6. Shifting loci of decision-making.

Industrial development in a market economy, like agricultural development, relies on decisions by individual persons and groups within limits of national policy, resource and factor-availability and perceptions of market dimensions. In the early stages of agricultural development in a market economy, the crucial decision-makers are peasants and farmers. In industrial development, they are proprietors, managers, and directors. Additionally, there are decision-makers in government. Hence, to promote industrialization is in large part to facilitate and promote the making of developmental decisions by the particular appropriate sets of decision-makers, in agencies and bureaus, on farms and in firms, with the aid of various institutional coordinating instrumentalities. In both the market economies and the centrally-planned economies, the trend is toward centralized policy decision, delegated management decision, and assigned operational decision, with continuous rearrangement in patterns of centralization and de-centralization.

7. The re-arrangement of comparative advantage.

In the development decades, new uncertainities have appeared with respect to the continuance of existing comparative advantage. Networks of international or inter-regional trade reflect patterns of comparative advantage that generally have been relatively stable, supported initially by the physiography of natural resources (climate, soil quality, ore deposits, the positions of seas and rivers); by natural systems of biological ecology; or by historical considerations. When technology intrudes into these networks of interactive advantage, introducing capability for production to new areas, older areas are no longer as securely comparatively-advantaged. Earlier forces of predetermination may become ineffective; problems of reorganization are likely to be generated, and planned interventions are evoked.

A reason for the comparative advantage of some industries is their ability to externalize (that is to pass onto others) costs such as waste disposal and pollution, that are products of industrial activity, but are costs to the community rather than to the firm, and this is a point on which developing countries, especially those which are former colonies, are extremely wary. An emerging stratagem of development is the anticipation of changes in comparative advantage, in response to the introduction of controls over climate, soil fertility, drouth, flood, transportation, and travel, and in the manipulation of the factors from which comparative advantages derive. In the past, comparative advantage has been predetermined; in the future it may be increasingly susceptible to change through purposive planning. (Mountjoy, 1967; Ewing, 1967; McNamara, 1972).

8. Balancing production for domestic and foreign markets.

In many developing countries production for export has initially exceeded import substitution, especially where economies had been colonial in the past. In planning for new investment, however, in most developing areas import-substitution is favored for early but not exclusive priority over production for export. Both are involved in achieving balance. If, however, industrial development undertakes only import substitution, without attention to the development of basic industries, change will occur too slowly, partly because imports in the past have been largely of commodities mostly consumed by elites. (Koh, 1964; Whetham and Currie, 1969; Ewing, 1967; Mead, 1967). Size-of-market sets limits to possibilities for import substitution, which becomes too costly unless the masses are buyers. Whether industrial effort is directed toward production for domestic consumption or for export-or a balance of both, indeed has bearing on other dimensions of development, but it is a question for separate analysis in each case.

9. The ecological revival.

Ecology is a venerable field of science, initially only biological, dealing with the relation of an organism to its environment. The explosions of the 20th century: population, knowledge, energy are a renaissance that has revived humanity's lapsed consciousness of environment and of the threat of its dissipation. In developmental thinking now, attention quickly moves from industrialization alone to environmental protection and pollution-prevention, as noted above in the paragraphs on modernization.

In a recent address to the Annual Session of the Federation of Indian Chambers of Commerce and Industry in New Delhi, Prime Minister Mrs. Indira Gandhi said: "It is one of the many paradoxes of our decade that affluence does not always improve the quality of life and industry which provides us with our necessities and our luxuries is also largely responsible for pollution of air and water. I hope our own industrialists will take an active interest in ecology, in ensuring clean living and in preserving the beauty of our environments, whether it is natural beauty or man-made monuments." (Gandhi, 1972)

It is notable, by way of illustration, that bilateral technical assistance programs in the USA have initiated formal agreement between the U.S. Agency for International Development and the U.S. Environmental Protection Agency to assure recognition of environmental consequences of development projects.

It is of major importance that the first United Nations Conference on the Human Environment, held in Stockholm only a few weeks ago adopted several recommendations for imminent UN General Assembly action, enhancing the visibility of the new environmental/ecological emphasis in current thinking about development.

> "Development was not the main agenda item when the United Nations Conference on the Human Environment convened....but it quickly became the chief political issue of the conference. Strong calls came from some of the developing countries, particularly African ones, for greater financial aid from the industrialized countries. They made these appeals both on the basis of the damage already done to their environments through

exploitation of their natural resources by the colonial powers and by more modern neo-colonialist multinational corporations and on the grounds that their future development would be more costly because of the anti-pollution controls which would need to be built in, controls which might indeed jeopardize their vital exports." (Note, SID:IX-6, 1972).

"....World Bank President Robert S. McNamara [in an address] declared that there was no evidence so far that 'economic growth--which the developing countries so desperately require--will necessarily involve an unacceptable burden either on their own or on anybody else's environment'....'By careful analysis, we have found, in every instance to date, that we can reduce the danger of environmental hazards either at no cost to the project, or at a cost so moderate that the borrower has been fully agreeable to accepting the necessary safeguards.' Indeed, he went on, 'it is clear that in environmental matters the developing countries enjoy one of the very few advantages of being late-comers in the development process: they are in a position to avoid some of the more costly and needless mistakes the developed countries made in the past." (Note, SID:IX-6, 1972)

"Proposing a statement of principles, a global Earthwatch program, and a new UN Environmental Agency, the conference identified underdevelopment as an environmental problem requiring international transfers of technological and financial aid. The principles further point to the need for stable prices, adequate earnings and supplemental assistance on the part of poor countries so they can pay for the costs of environmental safeguards in compliance with essential standards...." (Note, SID:IX-6, 1972)

An extreme estimate of future problem of overdemand on the environment is that "if the expected 7 billion people by the year 2000 were to have a GNP per capita as high in the United States today, the total pollution load on the environment would be at least ten times its present value." (Meadows et al 1972)

10. Summary: the trends noted.

With development defined as modernization, and industrialization recognized as a prime agent, the first trend noted above is the continuation of industrial development in developing countries, but with such discontinuity, diversity and selectivity as to defy easily generalizable summarization. Industrialization did not fulfill expectations in the first development decade; gaps in economic status widened. During that period also modernization has come more and more to incorporate orientation to the future; but emphasis on growth as the only manifestation of development has lessened, emphasis on environmental consequences has intensified, and the post-industrial service sector has emerged to major importance. The regiona

and global theatres of development have gained in importance, with corresponding shifts, in the loci of decision-making and certain propositions in strictly economic terms: comparative advantage, balance in trade are seeking reformulation. Finally, revival of ecological values has blended biological, economic and social philosophies.

Part II--Industrialization: Implications for Other Sectors

1. The classical model of impact.

It is a standard view that industrialization as a process changes everything profoundly. No feature of the economy, trait of the culture, attribute to the polity or feature of the society is exempt from the likelihood of change. Several broad generalizations describing the consequences of industrialization are familiar to social scientists: machines relieve and reallocate manpower; production moves from the home and the farm to the factory; specialization ramifies throughout the division of labor; contracts and monetized markets displace mutual aid and barter; the bureaucratization of complex organization both in government and economic activity replaces village, feudal, and tribal structures; there is demographic transition from high to low mortality and fertility; mobility is accelerated; personal individuation paradoxically results in both depersonalization of work and massification of interaction; secularization of values transmutes tradition by rationality, science and technology. (Moore, 1968)

These generalizations may be stated in other ways, and other conclusions may be added, but they outline the usual view of the effects of industrialization in Western nations. They serve here as a background for topical commentary on selected implications of industrialization for other sectors in developing countries. The foregoing notes on selected trends identify points of implication, that are too scattered to encourage simple or unitary projection. Identification of developmental implications is as selective as that of trends; and equally specific to time and place. Trends are so varied in kind and degree that one must identify for any

particular situation the nature of divergence from or correspondence with the classical model of impact. The most general implication is that industrialization is not fast enough or sufficiently widespread to achieve the results in developing countries that would be predicted by the classical model of impact.

As always, in discussion of social and economic factors, overlaps occur, and terms are not mutually exclusive. Implications drawn from industrial trends are as much functions of each other as of the trends; the same fact or event illustrates different trends. Urban agglomeration, unemployment, poverty: each requires separate discussion, but they refer to common and overlaid phenomena. Nevertheless, the distinctions are necessary to keep in mind; separate mention of each facet, attribute or variable, and repetition under other headings are necessary. The following discussion will not undertake to review all the items in the classical model of impact, but will discuss briefly implications for only the following selected factors: growth and distribution of population, poverty, employment and infrastructure in general.

2. Growth of Population.

In the developing world, industrialization is not fast enough or sufficiently widespread to effect demographic transition according to expectation. Mortality rates but not fertility rates have declined, and rates of population increase have been greatly accelerated. Population growth outruns industrial growth, often concealing social gains that might otherwise be visible. Pressures mount worldwide for programs to slow or stop the runaway increase in population.

A representative comment on the impending problem in all developing countries is that, "....too many of the fruits of development are wasted in supporting more people in poverty instead of being used to abolish poverty. The whole problem of development, and particularly the furthering of industrialization, becomes

more and more intractable with soaring population totals. These problems beset parts of Southeast Asia today but tomorrow will grip Latin America and then Africa." (Mountjoy, 1967: 192-193)

Data from almost any of the developing countries might be presented in specific illustration of the general point. Recent analysis of changes in Egypt are at hand, and may be presented for emphasis, "In spite of an extremely high increase in industrial output, additional employment in this sector absorbed less than 15% of the increase in the number of adult males in Egypt from 1947 to 1960. There is virtually no prospect that in the foreseeable future the sector will be in a position to employ enough workers to reduce the degree of over-population in the rest of the economy." (Mead, 1967: 127)

The most recent yearbook of Labour Statistics (1971), cited in the Survey of International Development, estimates the magnitude of the population problem in labor-force terms. "Noting that accelerating population increases in recent years have already begun to create serious employment problems in many parts of the world, ILO projections forewarn of a dramatic rise in the world's labor force within the coming years--from 1.5 billion in 1970 to almost 2 billion in 1985. While the labour force increased at the beginning of the 20th Century by about 3 million persons each year and by 10 million annually around 1950, today the world's labour force is increasing by 27 million people each year and by 1985 is expected to grow by 35 million persons annually." (International Labor Organization: 1971)

It is the weight of the evidence of population increase that has brought population limitation to the forefront of discussions of developmental strategy for the 1970s, displacing industrialization, which was one of the panacea-stratagems promoted in the 60s. It appears, indeed, that industrialization is

dropping or has dropped to third place on the list, below the newly acknowledged strategies of environmental control or pollution prevention which holds second place to population control. The seers of the last century, and even earlier, like Malthus and Marx, to name two, could not identify the factors and trends which appeared after their nevertheless relatively prescient predictions. Perhaps the cyberneticians of this and following decades can estimate better than Malthus and Marx the surprises that have always interrupted history to change the trajectories of prediction. Certainly factors and trends not yet foreseen will appear in the next and following centuries, but present wisdom cannot default in the obligation to warn mankind of the urgency of population predicaments.

Meanwhile, it is noted in the World Progress Report section of World (August 15, 1972) that, "only thirty-five, about one-third, of the world's developing countries (those with runaway population increases) have given their family-planning programs national status. And only forty-five UN member countries have population research facilities, mostly, of course, in the 'developed world'."

"...The UN has named 1974 World Population Year. Each of the 132 member states is being asked to prepare its own national program, set its own targets, and establish a supervisory body to oversee the effort and tie it in to a global approach."

3. Distribution of population.

Industrialization is not fast enough or sufficiently widespread to mediate the mobility and settlement of population in conformance with the distribution of resources. Not only the magnitude, but the dispersion of population is overwhelming industrialization's capability for the guidance that--other things being equal--would put people and jobs together, making settlement and industrial development inter-responsive.

The chief and most critical manifestation is the over-concentration of population in cities, far out-running what might be called developmental urbanization. "In the less developed regions urban population has increased fourfold in the past forty years; in the year 2000 it may be twenty times as large as it was the year 1920." (Note in SID, VII:4, April, 1970) It is predicted that the urban population of the world will rise from 1330 million to 3090 million by year 2000, "an increase of 1760 cities the size of Marseilles." Nearly 90,000 persons a day are moving into urban areas (U Thant, 1971).

An important contributing factor is the over-stimulation of rural-urban migration. Many villagers respond to inaccurate information about the availability of jobs, like desert travellers moving toward a mirage, and they move into cities more rapidly than they can be employed. Thus urban concentrations of poverty become ghettos of rural-urban migrants and this has occurred in developed countries as well. National information policies are needed to direct migration toward real opportunity, and restrain what might be called hopeless migration, and to diffuse opportunity, discouraging overconcentration in populous places.

Data on this point abound for many of the large cities in developing countries. Dakar affords just one of many documented illustrations. "Migration to Dakar persisted after the last 1950s when employment began to decline; traditional solidarities between urban wage-earners and their rural families ('extended family system') allowed migration to continue despite the absence of new employment opportunities; relatives arrive in town and find it possible to live at a wage-earner's expense." (Pfefferman, 1968)

Because of the increasingly uneven re-distribution of rapidly growing populations, topics related to settlement have risen to greater prominence in the discussions of development. The social assymmetry of the big city is in the forefront of attention, but the approach is more general, and wisely couched in terms of the comprehensive concept of human settlement, for which

the United Nations, in a recent report, has undertaken the mobilization of new services. "The national action strategy outlined in the report emphasizes 1) the need for the development of financial and other institutions; 2) the arousal of public opinion to the problems of urbanization; and 3) the need for human settlement planning as an integral part of national development."(U Thant, 1971)

4. Poverty and the Maldistribution of Income.

Industrialization is not fast enough nor sufficiently widespread to alleviate poverty by the redistribution of income, or by other means. Data which establish this generalization are supplied also in the reports of the International Development Bank, as cited by Mr. McNamara, and his statement may be excerpted for main points, without need of interpretation.

On the general situation, it is observed that "....while during the First Development Decade the world's total GNP increased by $1,100 billion, 'eighty percent of the increase went to countries where per capita incomes already average over $1,000' and where only one-quarter of the world's population resides, Mr. McNamara pointed out that, 'only 6 percent of the increase went to countries where per capita incomes average $200 or less, but they contain 60 percent of the world's people'." This reveals a severe maldistribution of the world's wealth and income. (McNamara, 1972)

India, Mexico and Brazil, were among illustrative cases cited in the address:

> "Though India experienced during the past decade an overall growth in GNP, about 40 percent or 200 million people live at present beneath a poverty line--a line defined as the point at which people begin to show symptoms of serious malnutrition. There is evidence, moreover, that the poorest sector of the nation--10 percent or some 50 million people, may actually have grown poorer during the First Development Decade."
>
> "...In Mexico over the past twenty years the average income per capita grew--in real terms--at 3 percent per year. While the richest 10 percent of the population received 49 percent of the national income in 1950 and 51 percent in 1969, the share of the poorest 40 percent of the Mexican people amounted to only 14 percent in 1950 and declined to 11 percent in 1969. Moreover, the national income share of the poorest

20 percent during the period under review dropped from 6 percent to 4 percent."

> ".....Even within countries that have registered significant increases in GNP growth rates, income distribution patterns are unequal. While in Brazil GNP growth rates were certainly not insignificant--per capita GNP in real terms growing by 2.5 percent per year--the poorest 40 percent of the population benefited, however, only marginally--their share of national income declining from 10 percent in 1960 to 8 percent in 1970. In contrast, the share of the national income of the richest 5 percent of the populace grew in the same period from 29 to 38 percent." (McNamara, 1972)

Would disparities have widened more, or as much had there been no concentrated developmental effort in the 60s?

5. Occupations and Employment.

Industrialization is not fast enough nor sufficiently widespread to expand the demand for skilled workers or to create work opportunities for migrants from farms and villages, preventing unemployment and shifting workers from agricultural to non-agricultural employment. The transfer of workers is not, of course, agriculture's only interaction with non-agricultural industry. Other factors include the production of commodities for industrial workers to consume, production of goods for export, and the generation of savings (capital) for re-investment. (Clawson, 1967) Nor does transfer of workers from agriculture always reduce the number, as in Japan, where workers on farms are as numerous as ever, in the face of very great industrial expansion.

But, wherever the peasant works, whatever crop he produces, there is a technology already employed somewhere in the world that could displace him and his bullock. Rice can be handset, plant by plant in Asia and hand-picked, head by head, as it has been for centuries. But in the modern countries, if anything is done by hand anymore, it is to maintain health by exercise, or to release personal energy, or to express an urge to create, or to decorate.

Industrialization shifts production from man to machine. In agricultural technology, this shift increases the efficiency of production and releases labor into a pool of local unemployment or underemployment, or into a flow of migrants which are candidates for employment in cities, especially in industry.

> "After all, it is a simple and well-established fact that whereas underdeveloped countries employ 80 percent or more of their population in agriculture, with a very small fraction in industry, developed countries employ in agriculture normally less than 20 percent down to as low as 5 percent. In its starkest terms economic development is nothing more than the reversal of these proportions." (Ewing, 1967)

To accomplish the transfer of workers from agriculture under the circumstance of continuing rapid growth in the labor force, non-agricultural employment must increase even more rapidly, and this is at present failing to occur in developing countries. Glassburner has recently described the situation in Indonesia, as follows,

> "Solution of this sort of structural problem and the finding of new means for expanding nonagricultural employment is basic to the problem of planning Indonesia's economic development program. At least two million people are already overtly unemployed, most of them in the cities. Another million persons, roughly are added to the labor force annually. Both the agricultural sector and the public sector suffer from labor redundancy and disguised unemployment. Hence manufacturing, mining, and trade must bear a heavy burden in any successful labor absorption effort." (Glassburner, 1971)

During the 1960s, it was generally assumed that economic growth in developing countries would create employment opportunity, as it had done historically in developed countries, but this has proved not to be the case.

> "Because of the population explosion during the 1950s, the 1970s will witness a major influx of new entrants to the labour markets of the developing countries. Ambassador Martin states that 'without major new initiatives, not now on the horizon, the burden of unemployment by 1980 will have created explosive, if not exploded, social and political crises in nearly all developing countries'. He adds further that 'most observers have had to concede that the employment problem has in most countries worsened over the past ten years, perhaps over the past twenty'." (Martin, 1971)

Developmental strategies to invoke in the developing areas where capital is scarce and labor is plentiful are listed in a commentary on Latin America, for which, "a number of possibilities to ameliorate the situation are being seriously considered. Among these are 1) the adaptation of machinery to be more labour-using; 2) the selection of more appropriate choices of equipment from the stock of manufacturing processes available; 3) greater emphasis on less capital-intensive industries and on the more labour-using activities of agriculture and construction; and 4) more attention to family planning." (Inter-American Development Bank, 1971).

Pressures mount for policies and programs to support labor-intensive as compared with capital-intensive industry. Pressures mount also for relief and welfare programs, for employment counselling, unemployment insurance, and for various labor-oriented governmental policies.

6. Infrastructure.

It is a general omni-inclusive point that industrialization is not fast enough nor sufficiently widespread to develop infrastructural adequacy. Turned inside out, the statement is also true: infrastructural inadequacy inhibits the progress of industrialization.

The dictionary meaning of infrastructure is borrowed for social science from military usage which refers to permanent installations from which action can be launched and sustained. The economic meaning is variously defined; by some it is taken to mean almost all the social and economic context including provisions for education, health, social services. Others limit it to designated sectors: credit, markets, transportation, etc. By either the broad or limited definition, the basic propositions on infrastructure are true. The prefix "infra" means "sub," or under. (By a paradoxical mixture of metaphor, infra-structure is also called "social overhead.") The usual restricted reference is

to sub-structure, which undergirds and supports the structure of industry. By logical implication, at least, there is also a super-structure of society, economy, polity, culture, which rests in large measure upon the well-developed structure of industry. There is something of the hen-and-egg in flexibility in discussion here. A network of highways, for example, is at once an element of infra-structure, a component of industrial organization, and a product of industry; it is both a pre-condition and a consequence.

Illustrations are numerous in recent reports on industrial trends. With reference to transportation in India, Haswell observes, "....capital invested in improved techniques of production is largely wasted unless access to markets is assured through good road and transport facilities...the most striking feature for rural India as a whole, however, is its primary dependence on the bullock cart for transport, and the crippling spatial limitations which this imposes upon the economy." (Haswell, 1967)

Writing on Indonesia, Glassburner states that, ".....industrialization will very likely be accomplished only very slowly, limited on the one hand by the need for the rebuilding and expansion of the native's infrastructure in transport, communications and power, as well as the growth in quantity and quality of their labor force and entrepreneurs." (Glassburner, 1971)

Ewing, in a comment regarding Africa, writes, "the prerequisites of industrial development considered here are science and technology, and the application thereof, education, manpower planning, the discovery of natural resources, energy, and transport." (Ewing, 1967)

The experience of a Latin American nation, Bolivia, was cited as of 1964 by Zondag, "what is striking is that in 1964 improvements are no longer limited to a few isolated sectors of the economy but instead there is beginning to be progress across the board, as reflected in better transportation, accelerated internal migration, and conspicuous gains in education." Bolivia, therefore, may well have seen the worst and may now be ready for a gradual

economic recovery which will have a relatively sound base." (Zondag, 1966)

The broadest meaning of infrastructure is implied in Mountjoy's general statement, that, ".....there can be no hope of successful industrialization without the establishment of a firm foundation both in social services and public utilities, for the infrastructure concerns human as well as material resources. Here the more adverse influence of environmental factors in extra-temperate climates upon efficiency of labour and costs of basic works must be recognized. The infra-structure requires substantial investment but offers delayed returns." (Mountjoy, 1967)

Part III--Concluding Note

The implications of industrial development with respect to population growth and distribution, poverty, employment and infrastructure are attributable not to particular trends, but rather more generally to most or all of them together. Nor is the present discussion a full treatment of the matter. Specific implication of particular trends remain to be explored by more analytical procedures, as do also industrial influences on other factors in development. Data are less readily available for the study of these problems, which need time-series observation from longer experience with industrial development than some countries can yet report with full information. The main point of this paper is that industrialization's classic impact on development in the West has not yet been observed in the developing countries. The immediate implications for development lie more in this lack of direct impact through industrialization in the developing countries themselves, and in the impact by indirection of their continued incorporation in the industrial spheres of influence of the developed countries, where industrial management remains concentrated.

No doubt many among the indigeneous leaders in developing nations have hoped for modernization of their own cultures that would be different from, or

more than the simulation of others. It has been an implicit expectation in the promotion of industrialization, however, that its impact anywhere would be like its impact elsewhere, that is, as in the Western "classical model". It is clear that developing countries did not, in all respects, reach anticipated objectives of their own leaders or of others interested during the 1960s. It may be speculated that achievements were relatively greater than indicated absolutely in the unmeasurable sense that retrogressive trends, otherwise likely to have set in, were stemmed by the very considerable developmental investments that were made. Informed opinion is that most of the advanced nations are still underinvesting in the future of developing countries. But in the 1970s, development continues to be a central theme of human effort in all parts of the world. Modernization served by industrialization remains a paramount goal in developing countries.

Experience, although not yet being studied with enough system and rigor, is introducing modifications in developmental approaches. Three correlative sub-themes of modernization, although not completely overlooked in the 1960s, have become highly visible and are becoming as prominent in developmental strategy as is industrialization. The first of these is the anticipation of a post-industrial humanistic future in which production of services will transcend the production of goods. The second is a greatly increased concentration of effort to restrain the growth of population. The third is a new mobilization of attention to the husbandry of environment.

The chief summary implication to be confirmed by the observation of trends in developing countries is that industrialization is a necessary but insufficient contributing stratagem in their development. Total development requires a total system of effort, comprising major sub-subsystems, including industrial organization.

The discussion of other stratagems is beyond the task undertaken in this essay, but they surely include comprehensive planning to embrace all sectors of the society and economy, and especially measures to curb the runaway growth of population, measures to prevent the spoilage of environment, and measures to direct the energies of sun, earth and man toward inter-human service.

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